Abstract:

The thesis „The proteomic analysis in hematology: Identification of alfa2-macroglobulin as a specific carrier for the hormone hepcidin and proteomic analysis of the leukemic K562 cell differentiation induced by sodium butyrate“ describes proteomic approaches, used for the identification and functional characterisation of proteins, which are binding and transporting the iron metabolism regulating hormone hepcidin. Proteomic techniques are also exploited for the identification of proteins, participating in erythroid differentiation of the model cell line K562.

In the first section of the thesis, non-denaturing, native techniques, such as chromatography and native electrophoresis are used, in the second section, the control and butyrate – induced K562 cell proteomes are compared using the classical
2D - SDS polyacrylamide gel electrophoresis approach.

The methods, described in the thesis are broadening the spectrum of available techniques in experimental hematology. The results, described in this thesis together with the accompanying published manuscripts broaden our knowledge in the function of proteins of iron metabolism and proteins, functioning in erythroid differentiation.

Key words: proteomic analysis, hepcidin, alfa2-macroglobulin, iron metabolism, CML, K562, sodium butyrate